



U.S. DEPARTMENT OF **ENERGY**

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SRR Moves Another Step Closer to Tank Closure with Help from Robotic Frankie

AIKEN, S.C. (April 15, 2010) – An off-the-shelf motorized robotic device, known as “Frankie,” has become a big hit at the Savannah River Site (SRS) in liquid waste operations.

Modified with air suction hoses, a tethering cable and new treads, Frankie has successfully maneuvered his way around the bottom of two nearly empty 1.3 million gallon radioactive waste tanks, Tanks 18 and 19, scooping up pieces of a thin layer of residual waste for sampling purposes in one of the remaining steps toward operationally closing the tank.

“Safe operational closure of waste tanks is a top priority of the Department of Energy (DOE),” said Terrel Spears, Assistant Manager for Waste Disposition Project, DOE-Savannah River Operations Office. “With innovations like Frankie, SRR is able to sample residual waste more representatively, timely, and cost effectively.”

Savannah River Remediation (SRR), the SRS liquid waste contractor, began using Frankie earlier this year to collect samples remaining from previous waste removal and tank cleaning activities. Frankie was given his name in recognition of Frank Fischer, an inventor of another sampling tool used at the Site.

“Frankie has become a very valuable tool for us,” said Mark Hasty, SRR Waste Removal and Tank Closure Director. “Before Frankie, we would have to design a piece of equipment to get a sample vial down on the tank floor to get a sample. We would drag the vial on the tank floor to fill it up. It would cost \$100,000 or so for each custom-built vial. Besides doing a great job, Frankie is cheaper by about \$50,000.”

SRR has committed to operationally closing 22 of SRS’s 49 remaining radioactive waste tanks. Two tanks were closed in 1997. Fourteen of the 22 tanks are currently in one of

several steps leading to operational closure. Preparation for operational closure normally consists of removing the bulk waste, chemical or mechanical cleaning the tank as needed, removing as much residual waste as practicable with robotic devices, stabilizing the remaining residuals with a specific grout mixture and sealing the tank to prevent access. The process to prepare for operational closure can take up to six years, which is a timeframe SRR has plans to reduce.

Currently, four waste tanks are nearing the final steps in closure. Tanks 18 and 19, both 1.3 million gallon tanks, will be the next tanks operationally closed, which is targeted for 2012. Tanks 5 and 6, both 750,000 gallon tanks, will follow in 2013.

The Department of Energy (DOE), South Carolina Department of Health and Environmental Control, and the Environmental Protection Agency have agreed that waste removal activities may tentatively cease in Tanks 18 and 19, pending final characterization sampling. Frankie's ability to maneuver around the tank and collect samples is critical to measuring the success of removal of waste from the tanks.

Frankie has been successful, but working in the bottom of a hazardous waste tank has its limitation. As expected, a caustic solution on the tank floor, which was used during the cleaning process, has corroded Frankie's brass parts. His retirement has given birth to Frankie Jr., who successfully completed the sampling process.

Dating back to the early 1980s, Tanks 18 and 19 were used to store radioactive waste. Over a million gallons of salt material has accumulated in Tank 19 and the same volume of combined salt waste and hazardous sludge was in Tank 18. Three major waste removal campaigns in each tank during the last 25 years have eliminated the radioactive and hazardous constituents to facilitate safe environmental closure.

"All of the waste came from nuclear material separation operations in H Canyon where special nuclear materials are recovered for defense and space program," Hasty said. "Over the years during the campaigns there have been no injuries, which is a great testament to our people working safely."

SRS is owned by DOE. The SRS Liquid Waste contract is managed by SRR, a team of companies led by URS Corp. with partners Bechtel National, CH2M Hill and Babcock & Wilcox. Critical subcontractors for the contract are AREVA, Energy Solutions and URS Safety Management Solutions.